

CLAIMS

1. A vacuum pump comprising:

a pump rotor rotatably disposed in a casing; and

5 a pump-rotor controller for controlling rotation of said pump rotor in a forward direction or a reverse direction in accordance with a predetermined pattern at the time of starting said vacuum pump.

10 2. A vacuum pump according to claim 1, wherein said predetermined pattern includes a combination of at least two of rotation of said pump rotor in said forward direction, rotation of said pump rotor in said reverse direction, and stop of said pump rotor.

15 3. A vacuum pump according to claim 2, wherein said predetermined pattern is set in said pump-rotor controller such that said pump rotor is driven in the order of the rotation in said forward direction, the stop, and the rotation in said forward direction.

20 4. A vacuum pump according to claim 2, wherein said predetermined pattern is set in said pump-rotor controller such that said pump rotor is rotated in the order of said reverse direction and said forward direction.

5. A vacuum pump according to any one of claims 1 to 4, further comprising:

30 a state-judging device for judging whether said pump rotor is rotated normally or not at the time of starting said vacuum pump;

wherein when said state-judging device judges that said pump rotor is not rotated normally at the time of starting said vacuum pump, said pump rotor is rotated in accordance with said
35 predetermined pattern.

6. A method of starting a vacuum pump having a pump rotor rotatably disposed in a casing, comprising:

controlling rotation of said pump rotor in a forward
5 direction or a reverse direction at the time of starting said vacuum pump in accordance with a predetermined pattern; and
rotating said pump rotor in said forward direction in a steady state for evacuation.

10 7. A method of starting a vacuum pump according to claim 6, wherein said predetermined pattern includes a combination of at least two of rotation of said pump rotor in said forward direction, rotation of said pump rotor in said reverse direction, and stop of said pump rotor.

15 8. A method of starting a vacuum pump according to claim 7, wherein said predetermined pattern is set such that said pump rotor is driven in the order of the rotation in said forward direction, the stop, and the rotation in said forward direction.

20 9. A method of starting a vacuum pump according to claim 7, wherein said predetermined pattern is set such that said pump rotor is rotated in the order of said reverse direction and said forward direction.

25 10. A method of starting a vacuum pump according to any one of claims 6 to 9, further comprising:

judging whether said pump rotor is rotated normally or not;

30 wherein said pump rotor is rotated in accordance with said predetermined pattern when said pump rotor is judged not to be rotated normally.

11. A method of starting a vacuum pump, comprising:
judging whether said pump rotor is rotated normally or
not;

controlling rotation of said pump rotor in a forward
5 direction or a reverse direction at the time of starting said
vacuum pump in accordance with a predetermined pattern when said
pump rotor is judged not to be rotated normally; and

rotating said pump rotor in said forward direction in a
steady state for evacuation.